

What is claimed is:

1. A tire-wheel assembly having a wheel with a rim and a pneumatic tire mounted on the rim, the pneumatic tire having a cavity inside for charging air, the pneumatic tire having a cavity's resonant frequency  $F_c$  arising from the cavity, the wheel having a plurality of natural frequencies, a difference between the cavity's resonant frequency  $F_c$  of the pneumatic tire and a natural frequency  $F_w$  of the wheel closest to the cavity's resonant frequency being 10 Hz or more.

2. A tire-wheel assembly according to claim 1, wherein the difference between the cavity's resonant frequency  $F_c$  of the pneumatic tire and the natural frequency  $F_w$  of the wheel closest to the cavity's resonant frequency is 20 to 60 Hz.

3. A tire-wheel assembly according to claim 1 or 2, wherein the rim comprises a well portion, bead seat portions connected to both sides of the well portion, and flange portions connected to both sides of the bead seat portions,

a cross-sectional area  $S$  ( $\text{mm}^2$ ) surrounded by a phantom straight line  $L_i$  passing a position of radius  $D$  of the rim and a radially outer surface of the rim in cross section taken in a plane that contains a center axis of rotation of the tire-wheel assembly being in a range of 80 to 150 % of an area  $Q$  ( $\text{mm}^2$ ) expressed by a following expression:

$$Q=(A-2P)\times H$$

where  $A$  is a rim width (mm),  $H$  is a depth (mm) of the well portion, and  $P$  is a width (mm) of the bead seat portion,

the cavity's resonant frequency  $F_c$  of the pneumatic tire being

greater than the natural frequency  $F_w$  of the wheel closest to the cavity's resonant frequency  $F_c$ .

4. A tire-wheel assembly according to claim 3, wherein the wheel has a disk with an outer circumferential end to which the well portion of the rim is connected, the well portion having a recess annularly formed in a circumferential direction of the wheel therein, the recess extending to the disk.

5. A tire-wheel assembly according to claim 1, 2, 3 or 4, wherein the wheel includes a disk having a boss placed in a center thereof and a plurality of rim support parts radially extending from the boss, and the rim disposed radially outwardly of the rim support parts,

a natural frequency  $F_{yo}$  of the wheel closest to a frequency  $F_o$  expressed by  $F_o = K \times F_c$  being taken 5 % or more away with respect to the frequency  $F_o$  if a number  $K$  of the rim support parts is odd,

a natural frequency  $F_{ye}$  of the wheel closest to a frequency  $F_e$  expressed by  $F_e = K \times F_c / 2$  being taken 5 % or more away with respect to the frequency  $F_e$  if the number  $K$  of the rim support parts is even.

6. A tire-wheel assembly according to claim 1, 2, 3, 4 or 5, wherein the pneumatic tire has frequencies  $F_m$  of higher-order frequency components of the cavity's resonance obtained by multiplying the cavity's resonant frequency  $F_c$  by integral multiples of two to five, a natural frequency  $F_x$  of the wheel closest to each frequency  $F_m$  of the higher-order frequency components being taken away 5 % or more with respect to each frequency  $F_m$  of the higher-order frequency components.